

## 7.0 OTHER CEQA-REQUIRED SECTIONS

### 7.1 GROWTH-INDUCING IMPACTS

The California Environmental Quality Act (CEQA) requires EIRs to address growth-inducement potential of a project and the related environmental effects. The onsite wastewater treatment system (OWTS) regulations proposed by the State Water Resources Control Board (State Water Board) would establish minimum requirements for the permitting, monitoring, and operation of OWTS to prevent pollution and nuisance conditions wherever OWTS are used for disposal of wastewater in California. Therefore, this growth inducement analysis considers a broad context to characterize the potential effects of implementation of the new OWTS regulations at a statewide level.

#### 7.1.1 BASIS FOR AN ANALYSIS OF GROWTH-INDUCING IMPACTS

In accordance with Section 15126.2(d) of the State CEQA Guidelines, an environmental impact report (EIR) must discuss the growth-inducing impacts of the proposed project. CEQA states that the EIR shall:

Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Growth-inducing impacts would result from a project that would directly or indirectly foster (promote or encourage) additional economic or population growth or construction of additional housing. Growth can be fostered when an obstacle to growth is removed, as when expansion of infrastructure resolves growth-constraining capacity problems. In the case of the project, growth could be fostered if the OWTS regulations would allow the construction of OWTS facilities in locations where they currently can not be constructed, or would otherwise reduce the cost or other barriers to the placement of OWTS. Development requires wastewater treatment, and regulations that would reduce barriers to construction of OWTS would remove one barrier to growth.

The State CEQA Guidelines do not distinguish between planned and unplanned growth for purposes of considering whether such growth could result in environmental impacts. Therefore, in order to reach the conclusion that a project is growth inducing as defined by CEQA, the EIR must find that it would foster (i.e., promote or encourage) additional growth in economic activity, population, or housing, regardless of whether the growth is already approved by and consistent with local plans. The conclusion does not determine that induced growth is beneficial or detrimental, consistent with Section 15126.2(d) of the State CEQA Guidelines.

If the EIR determines that a project is growth inducing, the next question is whether that growth may cause adverse effects on the environment. Environmental effects resulting from induced growth (i.e., growth-induced effects) fit the CEQA definition of “indirect” effects in Section 15358(a)(2) of the State CEQA Guidelines. These indirect or secondary effects of growth may result in significant environmental impacts. CEQA does not require that the EIR speculate unduly about the precise location and site-specific characteristics of significant, indirect effects caused by induced growth, but a good-faith effort is required to disclose what is feasible to assess. Potential secondary effects of growth could include consequences—such as conversion of open space to developed uses, increased demand on community and public services and infrastructure, increased traffic and

noise, degradation of air and water quality, or degradation or loss of plant and wildlife habitat—that are the result of the growth fostered by a project.

If significant, indirect environmental effects of growth may occur, a final question to consider is whether those effects have already been considered and mitigated, or overridden if unavoidable, in a completed CEQA process. If the induced growth is consistent with an approved general plan or community plan for the area, and a CEQA document on that plan adequately addresses the effects of growth in the plan, the environmental effects of growth induced by the proposed project should have already been evaluated and considered by the lead agency in which the growth could occur. In this circumstance, the EIR for a proposed project may incorporate the completed CEQA document by reference and need not re-evaluate previously identified impacts. A project that would induce growth that is not consistent with an adopted general plan or community plan could indirectly cause additional significant environmental impacts beyond those evaluated in the earlier CEQA document on the plan.

The decision to allow potentially induced growth is the subject of separate decision making by the lead agency responsible for allowing such projects to move forward. The proposed regulations specifically address how OWTS, which already would be approved or operating under local land use authorities, would be cited and operated; they do not address or approve permits for development of projects relying on OWTS, nor do the regulations approve the OWTS. Because the decision to allow growth is subject to separate discretionary decision making, and such decision making itself is subject to CEQA, the analysis of growth-inducing effects is not intended to determine site-specific environmental impacts and specific mitigation for the potentially induced growth. Rather, the discussion is intended to disclose the potential for environmental effects to occur more generally, such that decision makers are aware that additional environmental effects are a possibility if growth-inducing projects are approved. The decision of whether impacts do occur, their extent, and the ability to mitigate them is appropriately left to consideration by the agency responsible for approving such projects, at such times as complete applications for development are submitted.

### **7.1.2 GROWTH VARIABLES AND MECHANISMS OF GROWTH INDUCEMENT**

The timing, magnitude, and location of land development and population growth in a community or region are based on various interrelated land use and economic variables. Key variables include regional economic trends, market demand for residential and nonresidential uses, land availability and cost, the availability and quality of transportation facilities and public services, proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions. As discussed in Chapter 3.0, “Regulatory Setting,” and Section 4.3, “Land Use and Planning,” the general plan of a community defines the location, type, and intensity of growth, and it is the primary means of regulating development and growth in the State of California. Mechanisms by which a project may induce growth include creating jobs that attract economic or population growth to the area, promoting the construction of homes that would bring new residents to the area, or removing an existing obstacle that impedes growth in the area.

### **7.1.3 GROWTH—A STATEWIDE PERSPECTIVE**

This section discusses historical and projected growth and land use patterns on privately owned lands within California. Patterns of land development and growth anticipated at the macro level are refined locally by counties and cities through adoption and implementation of general plans and zoning laws. Data sources for this discussion of statewide growth trends and population growth are as follows:

- ▶ A study of baseline population and growth projections conducted in 2003–2004 by John D. Landis and Michael Reilly, Department of City and Regional Planning, University of California, Berkeley.
- ▶ Statewide demographic information from the California Department of Finance.

- Data on historical and projected housing development throughout the state compiled and presented by the California Department of Forestry and Fire Protection, Fire and Resource Assessment Program.

## POPULATION GROWTH PATTERNS AND TRENDS

For most of the 20th century, two-thirds of California residents lived in Southern California, within a geographic area that lies south of the Tehachapi Mountains and west of the San Jacinto Mountains. Development that occurred during the second half of the 20<sup>th</sup> century became increasingly more urban. Metropolitan growth during this period generally occurred near freeways that were built during the 1950s and 1960s. Based on national standards, large urban areas in California are currently reasonably dense, and economic theory suggests that densities should increase further as California's urban regions continue to grow (Landis and Reilly 2003–2004).

Development has traditionally been attracted to coastal areas where the ports are located and the climate is more moderate. Housing and land prices in California have long formed a downward sloping gradient eastward from the coastal centers of Los Angeles, Orange County, San Francisco, and San Diego, reflecting relative demand for these areas. The location and density of new urban development in California has generally and gradually shifted over recent decades. As coastal areas have built out, and as land and development prices have risen, the population and developers have moved ever further inland in search of less expensive land. Inland locations have, generally, traditionally been less subject to local land use and environmental regulation than coastal areas, and this condition has contributed to their development appeal (Landis and Reilly 2003–2004).

Most of coastal Southern California is highly urbanized, and relatively little vacant land is available for new development. The emergence of slow-growth policies in parts of Northern California and declining developable land supplies in Southern California are contributing to gradually increasing development pressure into the San Joaquin Valley. As development has pushed further inland, developers have recognized opportunities for infill projects and redevelopment in coastal metropolitan areas. Infill development tends to occur at higher-than-existing densities, leading overall urban densities to also rise. Therefore, as coastal metropolitan areas grow eastward, urban density in those areas also increases to some extent as a result of infill and redevelopment projects. Over the coming decades, projected urban development in the state will mostly occur on flat sites, follow freeways, and be located in and adjacent to existing cities and urban places. Beyond these commonalities, growth patterns will differ significantly by region and county (Landis and Reilly 2003–2004).

Additional useful data for mapping historical development and a scenario for the future progression of development has been developed by the Fire and Resource Assessment Program (FRAP) of the California Department of Forestry and Fire Protection (CAL FIRE) (FRAP 2001), which has been prepared as part of CAL FIRE efforts to assess and plan for resource management needs in existing and projected residential areas. The underlying model essentially allocates California Department of Finance (DOF) county population projections, after converting population to houses, to 9.6-square-mile grid cells based on their share of the 1980–1990 housing growth. This system provides a consistent scenario for the entire state that can be analyzed at any scale. The FRAP project includes mapping for both developed and “mixed interface” areas across most privately owned lands. The FRAP program selected housing density of one house per 20 acres to mark the lower boundary for mixed interface; i.e., the beginning of a rural residential land use pattern. For the purposes of program definitions, densities less than 1 unit per 20 acres are considered to reflect rural lands; densities higher than 1 unit per 20 acres show a trend to more urbanizing populations. FRAP has translated this data onto a map entitled, *Statewide Map of Historical and Projected Housing Development (1 or more units/20 acres) by Decade to 2040, Based on 2000 Census*, which is among the maps available for downloading from the FRAP Web site (FRAP 2004). The map reflects updates to the model from U.S. 2000 Census data. Detail on the FRAP study methodology is presented on the FRAP Web site (FRAP 2001). The map generally shows future growth occurring in existing urban areas in the Central Valley, stretching generally between Tehama and Kern Counties; in the Sierra Nevada foothills; and in counties southeast and northeast of metropolitan Los Angeles (Los Angeles, San Bernardino, Riverside, San Diego, and Imperial Counties). Pockets of growth in and near coastal areas are projected for Humboldt, Mendocino, Sonoma, Monterey, San Luis Obispo, and Santa Barbara Counties.

## POPULATION ESTIMATES AND PROJECTIONS

Based on DOF estimates, the state's population approached 37.7 million persons as of January 1, 2007 (DOF 2007a). The City with the fastest growth rate in 2006 was Beaumont in Riverside County (21.2%). The fastest growing cities following Beaumont were the City of Imperial in Imperial County, Lake Elsinore in Riverside County, Porterville in Tulare County, Lathrop in San Joaquin County, and Lincoln in Placer County. Since the April 1, 2000, U.S. Census, the top four fastest growing cities have been Lincoln in Placer County (233.9%), Beaumont and Murrieta in Riverside County (148.2% and 119.6%, respectively), and Brentwood in Contra Costa County (109.9%). Los Angeles has passed the 4 million mark with a total population of 4,018,080. A total of 20 cities in California are each home to more than 200,000 people.

The top two fastest growing counties in 2006 based on percent change were Imperial and Riverside, each with growth rates over 3%. Lassen County in northern California posted a growth rate of 2.4%. Other counties with growth rates exceeding 2% are concentrated generally within the Central Valley and include Yuba, Sutter, Placer, Merced, Madera, Kings, and Kern (DOF 2007a).

As for population projections, forecasters believe that California will be home to between 43 and 46 million residents by 2020. Beyond 2020, the size of the state's population is difficult to predict, and will depend partially on the composition of the population, and future fertility and migration rates (Landis and Reilly 2003–2004). DOF projects a total population for the state in 2020 of 44,135,923 persons (DOF 2007b). DOF population projections through 2050 indicate that Los Angeles will remain the largest county in California. Riverside County is expected to be the second largest, followed by San Diego County. Sutter County is expected to more than triple in population through 2050. According to DOF data, other counties with large population increases over the next approximately 40 years are projected to include Kern, San Joaquin, Fresno, and Orange.

### 7.1.4 POTENTIAL FOR THE PROPOSED STATEWIDE REGULATIONS TO INDUCE GROWTH

Comments submitted at public meetings and during the scoping period for the project included comments suggesting that approval and adoption of the proposed statewide regulations would induce growth and increase the population in California. This section of the growth inducement analysis addresses these comments, which generally covered the following main concerns that were raised:

- ▶ Legal lots that were previously unbuildable will become buildable, thereby opening land for development that cannot currently be developed.
- ▶ Growth will occur in places where the local regulations for OWTS are currently more protective of the environment and in areas where OWTS with supplemental treatment components are not currently allowed by local regulations but would be needed to meet local regulatory discharge/placement standards.
- ▶ In areas where OWTS are no longer an option, expansion of public sewer or community wastewater collection systems will occur, and this would remove an obstacle to growth.

As discussed in Section 4.3, "Land Use and Planning," the proposed statewide regulations address how local agencies and Regional Water Quality Control Boards (Regional Water Boards) retain the option of adopting guidelines and standards for OWTS, so long as they are equally or more protective of water quality and public health than the proposed statewide regulations (Section 30001[a] of the proposed statewide regulations). By the same token, nothing in the statewide OWTS regulations requires local agencies to adopt the OWTS regulations or elements thereof if they are less protective of the environment. In fact, if a local ordinance governing the siting of OWTS is more protective of water quality than the statewide OWTS, and a local agency proposes to adopt the statewide regulations, such a proposal would be considered a project under CEQA. CEQA requires government agencies to consider the environmental consequences of their actions before approving plans and policies or

committing to a course of action on a project. Therefore, a local jurisdiction proposing to amend its OWTS ordinance in a way that could result in a direct or reasonably foreseeable indirect physical change in the environment would be required to evaluate the environmental effects of the proposed action, in accordance with the requirements of CEQA.

For standard treatment systems, Riverside County requires at least 5 feet of continuous unsaturated soil to groundwater and 8 feet to an impermeable layer (see Table 3-1a in Chapter 3.0, “Regulatory Setting”). This element of the County’s regulations is more stringent, and more protective of the environment, than the proposed statewide regulations which require only a 3-foot separation to groundwater. Any proposal to weaken that requirement (i.e., to reduce the required soil depth limits to the 3-foot separation required by the statewide regulations) would be considered a discretionary action, thereby making it subject to the requirements of CEQA (Public Resources Code Section 21080 and State CEQA Guidelines Section 15357). Whether or not a local jurisdiction would propose to amend its approved ordinance or other adopted standards for OWTS is a matter of speculation. The statewide regulations clearly do not require this conformance (so long as the local ordinances are more protective of water quality than the statewide regulations), and nothing in the regulations compel such a local decision. The State CEQA Guidelines provide the following direction on the disposition of impacts that are considered too speculative for evaluation: “If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the lead agency should note its conclusion and terminate discussion of the impact.” (State CEQA Guidelines Section 15145) Similarly, any local municipality proposing to expand its public sewer or community wastewater collection system because it finds the statewide regulations *too restrictive*, would be undertaking a discretionary action, which would be subject to the requirements of CEQA. Although such an undertaking could open up development to areas where OWTS may be currently restricted, whether or not a city or county would propose extension of sewer infrastructure and/or expansion of a sewer district boundary in response to implementation of the proposed statewide regulations is also a matter of speculation.

Some comments received during public scoping suggested that the proposed statewide regulations would cause local jurisdictions to approve installation of supplemental treatment systems where they are currently not allowed or in instances where the systems themselves are prohibited locally. This is not the case; local governing bodies whose approved ordinances do not provide for supplemental treatment systems (e.g., Orange County) are not required by the statewide regulations to adopt amended ordinances to allow for installation of OWTS with supplemental treatment components. While the statewide regulations allow for the installation of supplemental treatment components and provide related guidance, the State Water Board, and the Regional Water Boards, have never prohibited supplemental systems. The regulations provide a mechanism, approach, criteria, etc surrounding supplemental systems, but do not allow their installation in any circumstances where they would have been prohibited by local statute prior to the regulations. Any proposal by a local jurisdiction to amend its ordinance to now allow installation of OWTS with supplemental treatment components would be subject to environmental review under CEQA to evaluate the effects to the environment that could result from that action. Implementation of the proposed statewide regulations, including the sections that address requirements related to supplemental treatment components, would not cause or remove a regulatory barrier to installation of supplemental treatment systems in any areas where they are not presently allowed; therefore, no change to existing growth conditions in California would occur.

Implementation of the proposed statewide OWTS regulations would not change the requirements and provisions contained in the approved Basin Plans for the respective Regional Water Boards. Assuming adoption of the proposed statewide regulations by the State Water Board, the nine Regional Water Boards would each recognize the new regulations for OWTS by proposing adoption of an amendment and incorporation by reference of Chapter 7 of the Water Code, “Onsite Wastewater Treatment Systems.” Of the nine Regional Water Boards, only the Los Angeles Regional Water Board (Region 4) does not specify a requirement for depth of soil to groundwater or an impermeable layer for OWTS (see Table 3-2 in Chapter 3.0, “Regulatory Setting”). The other eight Regional Water Boards include depth restrictions that are more protective of groundwater than the proposed statewide regulations (i.e., greater than a 3-foot minimum separation to groundwater or an impermeable layer for conventional OWTS and greater than a 2-foot minimum separation for OWTS with supplemental treatment

components). Any Regional Water Board proposing to amend its Basin Plan to decrease minimum soil depth requirements for OWTS would be required to address the potential environmental effects of that proposed action. In comparing the minimum soil depth requirements specified in the Basin Plans of all but one of the Regional Water Boards (the exception being Region 4) with those that are proposed in the new statewide regulations, no change to existing growth conditions would occur with approval of the new OWTS regulations. Where installation of an OWTS is allowed within the boundaries of the Los Angeles Regional Water Board, adherence to minimum depth requirements specified in locally approved and adopted ordinances for onsite sewage disposal is required. As described above, local agencies and Regional Water Boards retain the option of adopting guidelines and standards for OWTS, provided they are equally or more protective of the environment and public health than the proposed statewide regulations.

As discussed above, mechanisms for growth include creating jobs that could attract economic or population growth to the area. Implementation of the proposed statewide regulations could result in an increased need for qualified professionals and service providers in particular private sector industries. New staff that could be required would include qualified professionals to conduct soil and site evaluations for new and existing OWTS. Qualified professionals would also review, design, and approve designs for proposed conventional OWTS. (See Section 30002 [e], [f], and [g] of the proposed regulations, which are contained in Appendix B of this EIR.) Under certain circumstances, analysis of groundwater samples by a laboratory certified by the California Department of Health Services would be required for OWTS that are located on properties with onsite domestic wells (Section 30002 [t] and [u] of the proposed regulations). Owners of OWTS would be required to have their septic tank inspected by a service provider once every 5 years (Section 30002 [v] of the proposed regulations). Performance requirements for supplemental treatment components would require testing of treatment components by an independent third party testing lab prior to installation (Section 30013[e] of the proposed regulations). Under certain conditions, weekly inspection of OWTS with supplemental treatment components designed to perform disinfection would be required (Section 30013 [h] of the proposed regulations). Under certain circumstances, the services of a qualified professional would be required for inspection of OWTS located within 600 linear feet of an impaired water body (defined in Section 303[d] of the Clean Water Act) (Section 30040 [b] of the proposed regulations). The new monitoring requirements in the proposed regulations could result in hiring of staff at water quality testing laboratories. New demand for qualified professionals and service providers could occur at locations anywhere in California; however, the resultant population growth would not be concentrated in any particular area. Further, given California's employment total (over 17,000,000 people in 2007 according to DOF figures) it is not expected that the new demand would meaningfully change employment in the State, and would not lead to substantial population growth in any particular part of the State.

### **7.1.5 POTENTIAL FOR THE PROPOSED STATEWIDE REGULATIONS TO RESTRICT GROWTH**

Other comments submitted at public meetings and during the scoping period for the project suggested that approval and adoption of the proposed statewide regulations would restrict growth and decrease the population in California. The central idea expressed by these comments is as follows:

- ▶ The proposed regulations will render existing lots throughout the state unbuildable or prevent people from building in areas already designated for development.

As discussed in Section 4.3, "Land Use and Planning," the nine Regional Water Boards were established in their current form by the Porter-Cologne Water Quality Control Act of 1969 (Water Code Section 13000 et seq.). Development, adoption, and approval of Basin Plans followed during the 1970s. In some parts of California, legal lots of record were created preceding enactment of the Porter-Cologne Water Quality Control Act of 1969. During the years that followed, the new water quality protection standards set forth in the Basin Plans in accordance with state and federal law rendered some existing legal lots unbuildable in places throughout California. As discussed above, eight of the nine Regional Water Boards include depth restrictions that are more protective of groundwater than the proposed statewide regulations. Implementation of the proposed statewide OWTS regulations would not change the requirements and provisions contained in the approved Basin Plans for the respective Regional Water

Boards. Ongoing enforcement of existing water quality protection standards that have been in effect since the 1970s would continue to render certain legal lots unbuildable.

Within the boundary of the Los Angeles Regional Water Board, approved local ordinances for onsite disposal of wastewater may be more protective of the environment in some areas and less protective in others. If there are areas within Region 4 where a local ordinance or other regulation presently allows installation of OWTS with less than 1 foot of native soil, the proposed statewide regulations could be growth inhibiting or could increase the cost required to install an onsite sewage disposal system where enhanced treatment or alternative OWTS are allowed<sup>1</sup>. It is not known where implementation of the proposed statewide regulations could inhibit growth. The proposed statewide regulations would likely increase the cost to install OWTS in some areas; consequently, in some instances it is probable that OWTS costs could make development of some properties too costly. In those instances, it is likely that OWTS could moderately reduce potential growth. It is not known, and there is no data available, to quantify the degree to which growth would be restricted by increased OWTS costs.

## **7.2 CUMULATIVE IMPACTS**

### **7.2.1 INTRODUCTION AND APPROACH**

According to Section 15355 of the State CEQA Guidelines:

“cumulative impacts” refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

- (a) The individual effects may be changes resulting from a single project or a number of separate projects.
- (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

An EIR must discuss cumulative impacts of a proposed project when the incremental effect of the project is “cumulatively considerable” (State CEQA Guidelines Section 15130[a]). This chapter provides information about past, present, and reasonably foreseeable future projects that could result in cumulative environmental impacts; describes the contribution of the proposed statewide OWTS regulations and waiver to those cumulative impacts; and determines whether the project’s contribution to those cumulative impacts would be cumulatively considerable.

This cumulative impacts analysis evaluates statewide conditions and related projects that could contribute to cumulative impacts along with the implementation of the proposed project. Extra attention is given to those situations where OWTS are contributing to, and the proposed project would contribute to, the most significant cumulative water quality impacts (i.e., in the watersheds of water bodies designated as impaired under Section 303[d] of the Clean Water Act) where OWTS have been determined by local Regional Water Boards to be contributing to impairment (defined for purposes of this EIR as “targeted impaired areas”).

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<sup>1</sup> The proposed statewide regulations would require dispersal systems of all OWTS with supplemental treatment components to have at least 2 feet of unsaturated soil between the bottom of the dispersal system and seasonal high groundwater or an impermeable layer (Section 30014[d]). Where undisturbed native soil has insufficient depth to satisfy the minimum depth requirement, engineered fill may be added so that a 1 foot deficiency in the soil column depth could be replaced with 1½ feet of engineered fill. Engineered fill could not be used to compensate for more than a 1 foot deficiency in native soil (Section 30014[e]). Therefore, under the proposed statewide regulations, installation of OWTS with supplemental treatment components could be allowed on sites with 1 foot of unsaturated native soil, provided there were not other environmental or geophysical constraints that would prevent installation of an OWTS on a site (e.g., soil texture, ground slope, and minimum lot size requirements).

Projects considered in this analysis consist of past, present, and probable future projects that may contribute to OWTS-related cumulative impacts, including local projects outside of the regulatory purview of the state. These projects include regulatory programs and actions (e.g., OWTS management programs and regulations, and the total maximum daily load [TMDL] process) in addition to other types of related projects such as general plans, specific plans, resource management plans, and other planning projects. The information in Chapter 5, “Summary of Fiscal and Economic Analysis of the Proposed Project,” was also used along with CAL FIRE’s FRAP housing density and development projections (Exhibits 7-1 and 7-2).

## **PAST AND PRESENT RELATED PROJECTS**

Past projects have had a major influence on existing environmental conditions. These projects include the conversion of undeveloped land throughout California’s history to urban, agricultural, and industrial land uses, and the local land use plans and policies that allow such development to occur. Other related projects have reduced the adverse contributions of past and present projects to cumulative impacts, including Regional Water Board water quality control plans (basin plans), local OWTS regulations, and industry standards and guidelines influencing OWTS design and siting.

Large amounts of land have been converted in California from open space to various types of land uses that discharge or otherwise contribute contaminants to groundwater and/or surface water. This includes the residences and businesses associated with the approximately 1.2 million OWTS that have been developed in the state, including a relatively small number of large injection wells at industrial facilities. Other types of projects that have contributed to cumulative effects in areas where OWTS are found include vineyards, orchards, dairies, farms, and other types of agricultural uses where fertilizers, herbicides, and pesticides are applied, or animal waste is produced and /or released. Urban land uses (including residential development) and industrial developments also have contributed pollutants in these areas from stormwater runoff, from centralized treatment plant discharges, and from other influences that have led to intentional or unintentional disposal of a variety of pollutants, oil, fuel, cleaning solvents, and other hazardous materials.


As shown in Exhibits 7-1 and 7-2 from the FRAP, most of the state’s past development has occurred in the Sacramento–San Joaquin Valley, Southern California, the Sierra foothills, and urban areas of the San Francisco Bay–Delta region.. These exhibits were prepared using a statewide spatial analyses depicting growth, defined as one or more housing units per 20 acres (32 or more per square mile).

## **LOCAL AND REGIONAL REGULATIONS AND ACTIONS**

As described in Chapter 3, “Regulatory Setting,” the Regional Water Boards have adopted basin plans that establish important water quality standards (primarily water quality objectives [WQOs]) for discharges from OWTS and other sources of pollutants and discharges. Also described is the local level of OWTS-related regulatory jurisdiction, with a county agency such as an environmental health department, public health department, or building department. It is at this level that actual regulation and oversight of OWTS occurs, including approval, permitting, and inspection of new OWTS by staff, typically environmental health specialists with district assignments.

Some areas have also implemented relatively progressive OWTS management programs of varying intensity at the local level, as described in the Appendix G, “Economic and Fiscal Effects of the Proposed Statewide Regulations for Onsite Wastewater Treatment Systems.” Six of these programs are located in Santa Cruz County (including the San Lorenzo Watershed), Sonoma County, Stinson Beach (Marin County), the Sea Ranch (Sonoma County), the town of Paradise (Butte County), and the Auburn Lakes Trails Subdivision (El Dorado County). The services provided by the six programs vary, but are generally extensive with planning, management oversight, and reporting elements to help meet Regional Water Board requirements and to help protect water quality.

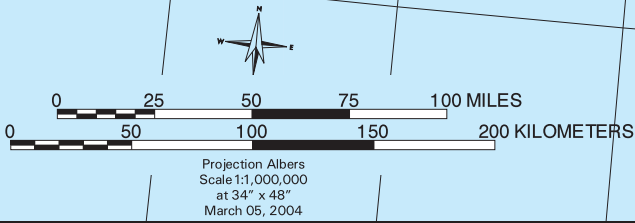
HISTORICAL  
PROGRESSION OF  
DEVELOPMENT

- |   |                  |   |              |   |  |
|---|------------------|---|--------------|---|--|
|  | 1939 and earlier |  | 1980 to 1989 |  | Undeveloped Private Land                                 |
|  | 1940 to 1959     |  | 1990 to 2000 |  | Public Lands<br>(may or may not be habitable, see below) |
|  | 1960 to 1979     |   |              |   |  |

This map depicts the historical progression of development over time by census split block group. Developed areas are classified by the decade in which the block group density reached one or more housing units per 20 acres (32+ housing units per square mile). Data prior to 2000 come from estimated housing counts in the 2000 U.S. Census of Population and Housing long form survey question "Year Structure Built", while data for 2000 come from the 100 percent count of housing units (Summary File 3A).

Note that if a house was demolished and rebuilt, only the rebuild date is reflected in the data, meaning that housing density in earlier decades may be underestimated. Housing counts are apportioned to habitable lands within block groups. Habitable lands are those owned by private parties (except private parks and reserves), tribal governments, Dept. of Defense (except U.S. Army Corps of Engineers), State Dept. of Corrections, University of California, and California State University. For more details see [http://frap.cdf.ca.gov/projects/development\\_vegetation/index.html](http://frap.cdf.ca.gov/projects/development_vegetation/index.html).

FRAP acknowledges Timothy P. Duane of the University of California, Berkeley for developing the method of creating historical housing density maps using "Year Structure Built" data. (Duane, Timothy P. 1996. Human settlement, 1850-2040. In: Sierra Nevada ecosystem project: Final report to Congress, vol. II, assessments and scientific basis for management options. Davis, CA: Centers for Water and Wildland Resources, University of California-Davis, p. 235-360).



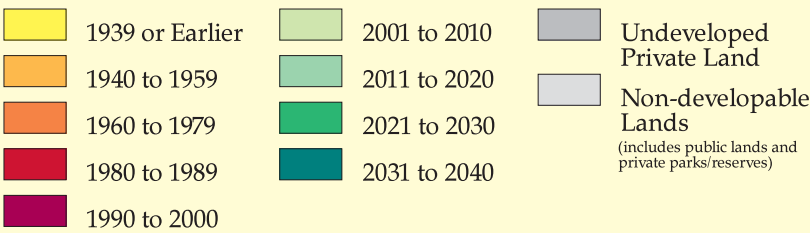
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Michael Chrisman, Secretary for Resources,  
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MAP ID: HISTDEV00\_MAP  
DATA SOURCES  
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Resources Agency Public and Conserv. Lands, v02\_1

HISTORICAL  
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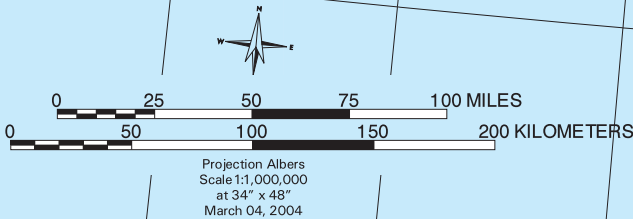


This map depicts both the historical progression of development and decadal projections for the years 2010 through 2040. Developed areas have a density of one or more housing units per twenty acres (32+ units per square mile). This threshold reflects a minimum density at which development begins to significantly impact many natural systems.

Projections of development are proportional allocations of California Department of Finance (DOF) countywide population projections, converted to housing units using the county's overall ratio of houses to people in 2000. To facilitate allocations, we transform decadal housing counts for Split Block Groups into square (where possible) zones approximately 2500 hectares (9.6 square miles) in area. At this spatial grain, proportional historical growth in a given decade explains much of the overall growth variation in subsequent decades. A zone's share of county housing growth in the 1990-2000 period determines its allocation factor for all subsequent decades. Some zones are split by county boundaries to preserve the accuracy of the county allocations, and/or public ownership, to properly reflect lands that can develop through private actions. Where possible, split zones smaller than 1600 hectares (6.2 square miles) are aggregated into adjacent zones. Projections are not made for zones less than 775 hectares (3.0 square miles) in area, although historical data are maintained.

Historical data come from housing counts in the 2000 U.S. Census of Population and Housing long form survey question "Year Structure Built" (Summary File 3A). Note that if a house was demolished and rebuilt, only the rebuild date is reflected in the data, which means that housing density in earlier decades may be underestimated. For a detailed methodology of CDF-FRAP's projection model see [http://frap.cdf.ca.gov/projects/development\\_vegetation/index.html](http://frap.cdf.ca.gov/projects/development_vegetation/index.html).

FRAP acknowledges Timothy P. Duane of the University of California, Berkeley for developing the method of creating historical housing density maps using "Year Structure Built" data. (Duane, Timothy P. 1996. Human settlement, 1850-2040. In: Sierra Nevada ecosystem project: Final report to Congress, vol. II, assessments and scientific basis for management options. Davis, CA: Centers for Water and Wildland Resources, University of California-Davis, p. 235-360).



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Arnold Schwarzenegger, Governor,  
State of California  
Michael Chrisman, Secretary for Resources,  
The Resources Agency  
Andrea E. Tuttle, Director,  
Department of Forestry and Fire Protection

MAP ID: PROJDEV00\_MAP  
DATA SOURCES  
USGS 1:100,000-scale DLGs  
FRAP Development Projections, v03\_1  
Resources Agency Public and Conserv. Lands, v02\_1

Section 4.1, “Water Quality and Public Health,” explains that the State Water Board, through the statewide stormwater permit for construction activity (Order 98-08-DWQ), requires implementation of a storm water pollution prevention plan (SWPPP) for any project that would disturb 1 acre or more, including best management practices (BMPs) that must be in place throughout all site work and construction. In addition, the State Water Board, under authority of the Clean Water Act, administers the National Pollutant Discharge Elimination System (NPDES) permitting program for discharges to waters of the United States. Local agencies with populations greater than 50,000 are required to obtain municipal stormwater permits for activities that take place within their jurisdictions.

The Regional Water Boards develop and implement TMDLs. Existing TMDLs for nutrient and/or bacteriological impairment, from all sources, have been adopted for nutrients and/or pathogens for over 100 defined surface water bodies (State Water Board 2006) and are expected to eventually be implemented for approximately 320 surface water bodies. Pathogen and/or nutrient TMDLs where OWTS have been identified as a contributing factor have been adopted for 10 water bodies, as shown in Tables 2-2 and 2-3 and Exhibits 3-1a through 3-1f. The TMDL process is a major opportunity for addressing and reducing the magnitude of adverse cumulative water quality impacts in the watersheds of impaired surface water bodies.

Other discharges of waste also can affect the quality of surface waters and groundwater. These include discharges of municipal and industrial wastewater from publicly owned treatment works, urban stormwater runoff, discharges from food processing facilities, dairies, and agricultural activities, including irrigation return flow, flows from tile drains, and stormwater runoff. Discharges from agricultural activities can transport pollutants such as pesticides, sediment, nutrients, salts (including selenium and boron), pathogens, and heavy metals from cultivated fields into surface waters and through the soil into groundwater. Many surface water bodies are impaired because of pollutants from these discharges.

Four of the nine Regional Water Boards have adopted comprehensive conditional agricultural waivers, and a fifth Regional Water Board has adopted a conditional prohibition to facilitate implementation of a TMDL incorporated into their basin plan to control and assess the effects of the discharges from irrigated agricultural lands that can contribute to degradation of groundwater and surface waters. The remaining four Regional Water Boards may also eventually adopt agricultural waivers to implement TMDLs in their regions. These waivers lead to the development and implementation of management practices designed to control agricultural sources of pollutants and thereby help to protect the beneficial uses of receiving surface water and groundwater.

## **GENERAL AND SPECIFIC PLANS**

State of California requirements for the content of general plans are expressed within California’s general plan guidelines, published by the Governor’s Office of Planning and Research (OPR) (2003). A general plan is required to address land use, circulation, housing, conservation, open space, noise, and safety. There is overlap between these elements and associated goals, policies, and regulations as they pertain to water quality and hydrology; however, general plans and more-detailed specific plans for specific areas covered by the general plan have a major influence on terrestrial and water quality–related cumulative impacts throughout the state by establishing not only the location of future development in individual counties and cities, but also the magnitude of such growth. Such plans must also comply with CEQA and typically have their own EIR documents that must address significant environmental impacts caused by the growth being approved by the plan and related mitigation measures.

## **REASONABLY FORESEEABLE FUTURE RELATED PROJECTS**

Regional Water Boards have identified OWTS as contributing to impairment in 10 water bodies for which TMDLs have been adopted. Some of these water bodies (identified in Table 2-3) are anticipated to qualify for exemption under Section 30040(d) of the proposed project regulations because of their existing regulatory actions addressing OWTS contamination.

Cumulative nitrate, phosphorus, and pathogen impacts from wastewater treatment plants and urban runoff have intensified and become more common as the state's population grows. As described in Chapter 3, "Regulatory Setting," the NPDES permit program regulates municipal and industrial discharges to surface waters of the United States and is thus another major opportunity for mitigating or avoiding cumulative water quality impacts. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and stormwater runoff (point source discharge). The Regional Water Boards in California are responsible for implementing the NPDES permit system, and the California Department of Public Health is responsible for drinking water regulations, including those affecting drinking water treatment plant operations. NPDES permits generally identify effluent limitations and receiving water limits consisting of allowable concentrations and/or mass loadings of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

## **ANTICIPATED GROWTH**

As described above in Section 7.1, "Growth-Inducing Impacts," future land development, and the regulatory and land use planning actions that approve or allow such growth to occur, are all considered future related projects. The FRAP assessment described above (FRAP 2003) showed that land conversion for new housing, potentially using OWTS, is expected to occur in rural areas on rangelands and forests near metropolitan areas and in the open space-urban interface (see Exhibit 7-1). Such future development is expected to contribute substantially to future water quality– and terrestrial resource–related cumulative impacts. While such regulatory and land use planning actions as adopting or updating general and specific plans and issuing building permits and zoning ordinances allow development to occur, the related policies and ordinances of local agencies and CEQA-related environmental review processes are major opportunities for minimizing and avoiding adverse cumulative impacts along with other types of actions by other agencies designed to help address the effects of future growth. These latter types of actions include Regional Water Boards and county health departments influencing growth patterns and densities in areas with water quality problems by issuing TMDLs, development prohibitions, or other regulatory actions that prohibit or otherwise restrict the location and/or magnitude of future development. For example, some local agencies in California (e.g., those located in Santa Cruz and Sonoma Counties, Malibu, the Sea Ranch community, Stinson Beach, Paradise) are noted for progressive OWTS management programs that greatly reduce the amount of contaminants discharged to groundwater by OWTS.

Nevertheless, notable amounts of future residential construction are expected to occur in California and much of this construction will take place on individual lots in areas where homeowners will require OWTS to meet their wastewater treatment needs. Such development and resulting OWTS discharges will contribute to future adverse cumulative impacts along with stormwater runoff, agriculture, municipal treatment plants, and other sources of adverse environmental impacts. The following trends and likely future conditions are also expected to result in, or facilitate more reliance on, OWTS over time:

- ▶ California's population growth over the next few decades and beyond is expected to be substantial, and much of this is expected to take place in areas outside of the state's large cities (see below).
- ▶ The upcoming retirement of millions of "baby boomers" will likely lead to many urban residents attempting to improve their quality of life by moving to rural areas and away from congested cities with traffic, air quality, and crime problems.
- ▶ Improvements in supplemental treatment technology over time, and more widespread use of such systems, will likely improve the performance of OWTS with supplemental treatment systems, may lower the cost of such systems, and will provide more selection for OWTS users. This in turn will likely allow more development of marginal areas with poor soils or relatively steep slopes to be developed as long as supplemental treatment systems are used.

- ▶ The cost of large, centralized treatment plants and sewer systems has significantly increased and is expected to increase notably over time as the cost of concrete, steel, and other commodities is expected to keep rising at historically high rates, while a major source of funding for these systems (federal money) is expected to be in short supply for the foreseeable future.

As summarized in Chapter 5, “Summary of Fiscal and Economic Effects of the Proposed Project,” and Table 5-2, a total of approximately 114,000 to 116,000 additional OWTS are expected to be developed in the state by 2013 relative to the number of systems estimated to exist in 2008. Table 5-2 shows how many of these systems are expected to be added to each of the state’s counties. The magnitude of new household development and OWTS is expected to be notably greater beyond 2013 given the trends and conditions summarized above. For example, DOF (2004) estimates the state’s population will increase from 39,135,676 people in 2010, to 49,240,891 by the year 2030, and to 59,507,876 by the year 2050 (a 52% change from 2010). Much of this population growth and associated development is expected to occur in relatively rural areas where OWTS will likely be used by many of the new households. For example, the population of Merced County is expected to rise from 273,935 in 2010 to 652,355 in 2050 (a 138% change), El Dorado County’s population is expected to increase from 189,308 in 2010 to 314,126 in 2050 (a 66% change), and Placer County’s population is expected to increase from 347,543 in 2010 to 751,208 in 2050 (a 116% change).

## 7.2.2 CUMULATIVE WATER QUALITY AND PUBLIC HEALTH IMPACTS

This section addresses potential cumulative impacts of the proposed project in combination with the related projects described above (particularly TMDL implementation and ongoing development). Cumulative impacts are of particular concern in these situations:

- ▶ impaired water bodies where OWTS have been determined to be contributing to impairment and
- ▶ developing areas that rely on OWTS where there is shallow or sandy soil and an underlying hydrogeology that could expose consumers to potential public health hazards.

This section also addresses other situations where related projects, as described above, and the proposed project would contribute to cumulative impacts.

The major cumulative impacts of concern on water quality involve nutrients (e.g., nitrate, phosphorus) and pathogen contamination of groundwater, particularly in areas where beneficial uses are impaired by these contaminants. Surface water impairment, either directly (through mechanisms such as storm water runoff or surfacing OWTS effluent) or indirectly (through hydrologic connection with contaminated groundwater, as is the case with Malibu Lagoon, discussed below), is also of concern (EPA 2004:13). Potential impairment of beneficial uses that would negatively affect public health and biological resources is also of concern.

As explained in Impact 4.1-8 and shown in Table 4.1-1, various OWTS constituents of secondary concern are known to occur in wastewater effluent and have been identified in addition to those noted above. However, depending on the constituent, not enough is known about their concentration in wastewater effluent, and at what concentration they would adversely affect public health or biological resources. Much uncertainty also surrounds the characteristics that determine the transport and fate of the contaminants and how effective properly sited and functioning OWTS systems are in attenuating these contaminants. Because of the lack of information or inconclusive nature of information currently available about these constituents in OWTS effluent, any additional analysis regarding potential cumulative impacts on water quality, public health, or biological resources related to these constituents would be too speculative.

## IMPAIRED AREAS WHERE OWTS ARE CONTRIBUTING TO IMPAIRMENT

### Overview

Areas where OWTS have been determined by Regional Water Boards to be contributing to water quality impairment are listed in Tables 2-2 and 2-3. Areas where OWTS may be contributing to pathogen impairment are listed in Table 2-4. In some areas, such as Malibu Beach and the San Lorenzo River, OWTS are a major contributor to impairment, while in other areas, such as the Russian River, Napa River and Rainbow Creek, OWTS are a minor contributor to impairment relative to other sources of pollutants (EPA 2004; San Diego Regional Water Board 2006; San Francisco Regional Water Board 2006). For example, as described in more detail below, approximately 57% of the nitrate found in the San Lorenzo River is believed to be from OWTS. On the other hand, the Russian and Napa Rivers have major effects from agricultural land uses contributing nitrogen, phosphorus, and various compounds found in herbicides and pesticides. The Russian River also has a large municipal treatment plant that discharges treated wastewater from the city of Santa Rosa. For Rainbow Creek, OWTS contribute 5% of the total nitrogen load to the Creek (San Diego Regional Water Board 2006).

Described below are several examples of water bodies where OWTS are contributing to impairment and for which TMDLs are in place or in development. These examples briefly illustrate how TMDLs, when implemented, are designed to reduce the cumulative impacts associated with target contaminants from a variety of related projects, to a less-than-significant level. The process by which TMDLs are established and implemented includes the analysis of contaminant sources and their relative contributions to impairment, evaluation of the risk to receiving waters, setting of numeric targets, allocation of loadings for each source of pollutants, and implementation of control plans or programs to better protect the beneficial uses being impaired without the TMDLs.

### San Lorenzo River Watershed

The San Lorenzo River watershed is impaired for nitrates and pathogens according to the 303(d) list. Because of an OWTS management program developed and implemented by Santa Cruz County for both contaminants, this watershed will likely be exempt from Section 30040 of the proposed project's regulatory requirements, as indicated in Table 2-3. Source analysis studies conducted under the TMDL process have shown the following primary sources of nitrate (with their relative percentage contributions indicated in parentheses):

- ▶ OWTS (57%),
- ▶ agriculture (livestock/stables and landscaping/fertilizer use)(8%),
- ▶ sewage discharge from the Boulder Creek Country Club (10%),
- ▶ the Scott's Valley groundwater nitrate plume<sup>2</sup> (9%), and
- ▶ natural sources (16%).

OWTS are thus the primary sources of nitrates in the San Lorenzo River Watershed. The numeric nitrate target for the San Lorenzo River, as established in the TMDL, is 1.5 milligrams per liter. Achieving this level would reduce the nitrate threat and represent a 30% reduction in total nitrate loading by the year 2020, which equates to the nitrate level prior to the late 1970s, before taste and odor became a significant problem in the city of Santa Cruz's water supply (Central Coast Regional Water Board 2000). Specific load allocations are in place for all sources, including OWTS (see Table 7-1) and are designed to meet the nitrate target noted above.

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<sup>2</sup> The Scott's Valley groundwater plume is located in the Scott's Valley groundwater basin approximately 1 mile southwest of the town of Scott's Valley. Sources for the Scott's Valley plume include past OWTS (this area was sewered in 1986), landscape fertilization, golf course fertilization, land disturbance, and historical agricultural activities.

**Table 7-1  
Nitrate Load Allocations for Nitrates in San Lorenzo River Watershed (Pounds per Month)**

| Contaminant Source                              | Felton | Carbonera Creek | Shingle Mill Creek |
|---|--------|-----------------|--------------------|
| <b>Urban Sources (Nonpoint)</b>                 |        |                 |                    |
| OWTS in sandy areas                             | 1,136  | 105             | 26                 |
| OWTS in nonsandy areas                          | 810    | 65              | 17                 |
| Sewer discharge from Boulder Creek Country Club | 53     | 4               | 0                  |
| Scott's Valley nitrate plume                    | 479    | 38              | 0                  |
| <b>Agricultural sources</b>                     |        |                 |                    |
| Livestock and stables                           | 112    | 9               | 4                  |
| Landscaping/fertilizer use                      | 106    | 9               | 3                  |
| <b>Natural Sources</b>                          |        |                 |                    |
| In nonsandy areas                               | 213    | 17              | 5                  |
| In sandy areas                                  | 639    | 52              | 13                 |
| Total (lbs/month)                               | 3,728  | 299             | 68                 |
| Source: Central Coast Regional Water Board 2000 |        |                 |                    |

Santa Cruz County is currently implementing the *San Lorenzo River Nitrate Management Plan*. It would incorporate the following methods to reduce nitrate loading by the estimated amount shown to meet the TMDL load allocations:

- ▶ Shallow leach fields for septic system repairs: 20% reduction
- ▶ Sand filters for septic system treatment: 50% reduction
- ▶ Enhanced septic system denitrification systems: 75% reduction
- ▶ Sewage collection and treatment: 75% reduction

More than 13,000 OWTS are present in the San Lorenzo River watershed, with estimates of a 1% to 5% failure rate (i.e., 130–650 systems) per year. Some of the failing systems are located near surface waters. Regional Water Board staff estimates that failing systems are the greatest source of pathogens to the San Lorenzo River. In the Carbonera Creek subwatershed, the City of Scott's Valley code states that onsite wastewater disposal systems cannot be repaired, which means that when a system warrants repair, the homeowner must connect to the sewer (Central Coast Regional Water Board 2007).

The numeric target used to develop the San Lorenzo pathogen TMDL for all responsible parties and natural (i.e., uncontrollable) sources is as follows:

fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 per 100 ml [milliliters], nor shall more than 10 percent of samples collected during any 30-day period exceed 400 per 100 ml.

The allocation is the same for each responsible party, including OWTS owners. According to the TMDL, the responsible party shall not discharge or release a "load" of pathogen indicator organisms that will increase the load above the assimilative capacity or TMDL concentration of a water body. All responsible parties for sources of pathogens to the San Lorenzo River Watershed are held accountable to attain these allocations. The parties responsible for the allocations to non-natural (controllable) sources are not responsible for the allocation to natural (uncontrollable) sources. Evidence has shown during the TMDL analysis process that uncontrollable sources

alone may not cause receiving water concentration to exceed the numeric target, and that the numeric target can be achieved by managing controllable sources (Central Coast Regional Water Board 2007).

## **Conclusions**

Regional Water Boards are in the process of developing and implementing TMDLs, or have implemented such standards, for all of the state's impaired surface water bodies. By design, and when fully implemented, the TMDL addresses cumulative water quality impacts in a watershed because it not only implements TMDLs that are intended to protect the different types of beneficial uses that would be impaired without the TMDLs, it also uses load allocations and other methods to reduce the contributions of the different related projects that are contributing to impairment. Cumulative water quality impacts in impaired water bodies where TMDLs have not yet been fully implemented may be significant because related WQOs and related beneficial uses may not be protected until the TMDLs are fully implemented. Over time and once the TMDLs are fully implemented, cumulative water quality impacts in areas with fully implemented TMDLs should be reduced to less-than-significant levels.

As described in Section 4.1, the proposed project's contribution to cumulative water quality impacts in targeted impaired areas would be less than significant because the proposed regulation would require the owners of conventional systems to convert to supplemental treatment in areas within 600 feet of the impaired water bodies. The proposed project would also generally improve the operation and management of OWTS via mandatory inspections, improved design standards, and other operational features described in that section. Therefore, the proposed project's contributions to cumulative impacts in the targeted impaired areas would not be cumulatively considerable.

In impaired areas where OWTS are not contributing to the impairment, owners would not be required to convert to supplemental treatment systems. Additional OWTS-related mitigation in these situations is not warranted because Regional Water Boards have determined that OWTS are not contributing to impairment in these areas. In other words, the impairment of local beneficial uses is being caused by other sources of pollutants and OWTS contributions to impairment in these areas are either minor or are not occurring. The ongoing development and implementation of TMDLs in these watersheds is also expected to reduce pollutant loads to the point where beneficial uses are no longer impaired.

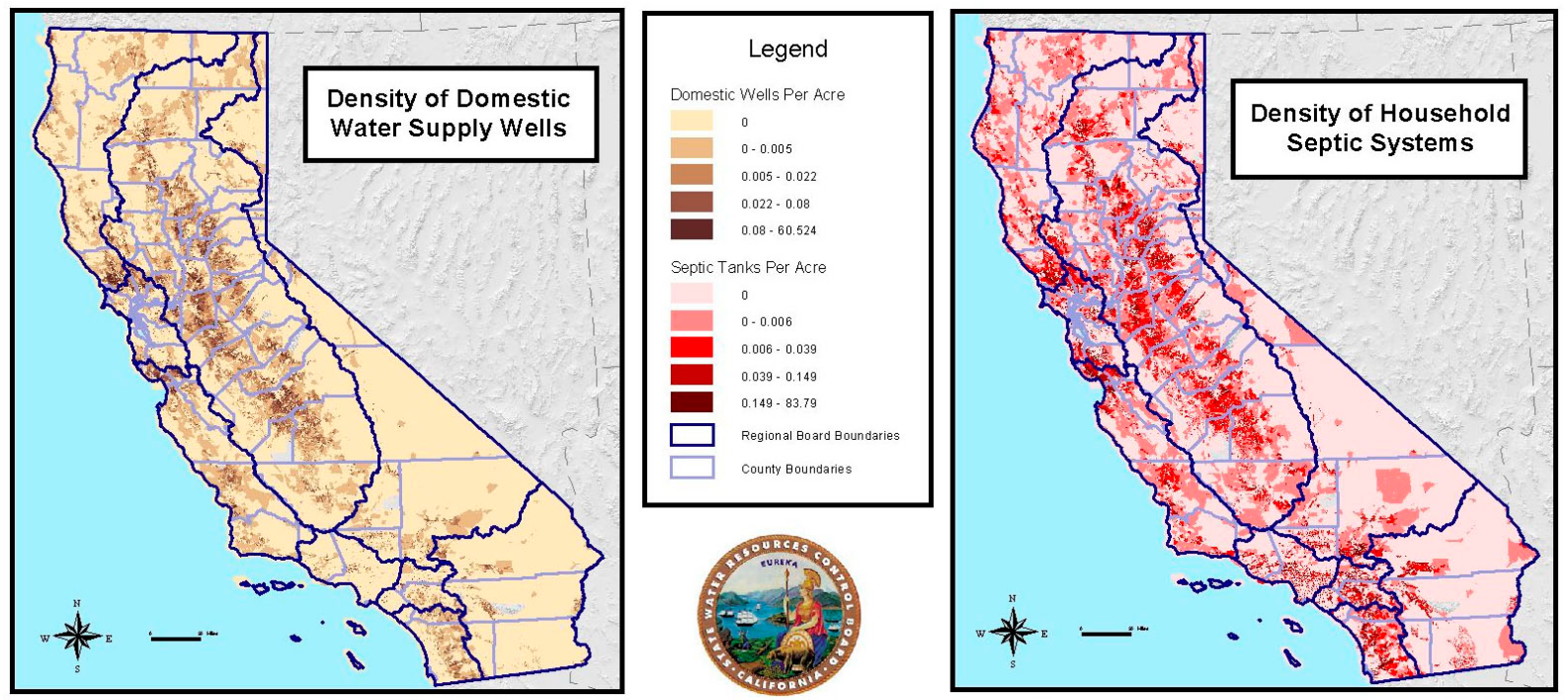
## **AREAS WHERE GROUNDWATER IS PARTICULARLY VULNERABLE TO NUTRIENT AND PATHOGEN CONTAMINATION**

### **Overview**

Wastewater discharged from OWTS can cause diseases such as infectious hepatitis, typhoid fever, dysentery, and various gastrointestinal illnesses (EPA 1977, see Section 4.1 for more information). It is also known that dissolved contaminant plumes of nitrate from conventional OWTS can travel hundreds of feet in groundwater and exceed drinking water standards (EPA 2002). Domestic wells are often sited between 100 and 200 feet from an OWTS. As shown in Exhibit 7-3 and described in Chapter 2 and Section 4.1, the same areas of the state that have relatively high densities of OWTS also have relatively high densities of private drinking water wells, and thus have the potential for nitrate and pathogens from OWTS discharges to contaminate drinking water supplies. As discussed under "Factors that Determine the Effectiveness of Dispersal System Treatment" in Section 4.1, sites that adequately remove viruses and bacteria (but not nitrogen) from wastewater before the effluent reaches groundwater are sites that have:

# Where are the OWRs?

## Densities of Domestic Supply Water Wells and Household Septic Systems Based on 1990 United States Census Data



- ▶ unsaturated soil with adequate amounts of organic matter (i.e., soil types other than sand and rocks),
- ▶ a suitable infiltration rate (fast enough to handle effluent loads and slow enough to enable microbial and physicochemical treatment), and
- ▶ a sufficient depth (at least 3 feet with conventional systems and 2 feet with supplemental treatment).

However, the presence of certain soil types and hydrogeologic conditions (discussed below) along with the presence of OWTS discharges substantially raises the risk of public health hazards for owners of onsite drinking water wells. In these situations, cumulative public health hazards may be significant.

As described under “Water Quality and Public Health Risks from OWTS” in Section 4.1, pathogens can cause communicable diseases through direct and indirect body contact or ingestion of contaminated water or shellfish. Some pathogens can travel substantial distances in surface water or groundwater, particularly in areas with fractured bedrock substrate and shallow or coarse sandy soils. Pathogenic microorganisms found in domestic wastewater include a number of different bacteria, viruses, protozoa, and parasites that cause a wide range of gastrointestinal, neurological, respiratory, renal, and other diseases (Table 4.1-2).

As described in Section 4.1, under conditions such as fractured rock environments, the soil typically is shallow and cannot adequately remove nitrogen and pathogens that may enter the soil before it reaches groundwater. Another important factor that increases health risks in these environments is the fact that groundwater or effluent in the fissures or fractures between fractured rock can travel rapidly over long distances with little natural treatment (see Exhibit 4.1-5), and the paths of fluids in the fractures are unpredictable. This may result in health risks because wells may intercept groundwater that has been contaminated with nitrogen or pathogens. Test results have indicated that contaminants from human activities are reaching these wells, either moving in groundwater held in fractured rock or as a contaminant plume in alluvial groundwater.

Human activities that may contribute pathogens and/or bioavailable nitrogen either directly or indirectly to groundwater include OWTS discharges, agricultural, golf course, and commercial and residential (landscaping) chemical fertilizer application, leaking or improperly functioning sewer systems, land application of treated domestic wastewater from publicly owned treatment works, dairies and other concentrated animal feeding operations (CAFOs), and increased cultivation of nitrogen-fixing legume crops.

## Conclusions

OWTS discharges and other human activities that result in the release of nitrogen and pathogens into groundwater will increase over time as future related projects are implemented, especially more residential, commercial, industrial, and agricultural development. The types of cumulative public health impacts described above have the potential to be significant in the situations described above, and these will become more significant over time because the Sierra foothill and Central Valley counties are expected to experience large increases in population and development. Although the proposed project would reduce the potential (compared with existing regulations) for adverse impacts in these areas by requiring septic tank inspections, septic tank effluent filters, well sampling, and other beneficial measures, it also would allow existing conventional systems to continue discharging and, unlike the regulations for targeted impaired areas, would not require supplemental treatment to be used when new systems are installed or existing systems are replaced. Therefore, the proposed project’s contributions to these potentially significant public health impacts are considerable because the proposed regulations would continue to allow these discharges, resulting in continued risk of contamination of drinking water wells.

To reduce OWTS contributions to a less-than-considerable level in fractured bedrock and other groundwater environments, additional regulatory requirements or mitigation would be needed. Such mitigation could consist of requiring all existing, new, and replaced conventional systems in fractured bedrock environments to convert to, or use systems that include disinfection and nitrogen removal capabilities and substantially remove nitrogen to levels

that would meet total nitrogen WQOs with little or no soil treatment. In the alternative, such systems could be required only if local well samples indicate pathogens or high levels of nitrogen from human activities.

However, requiring systems with disinfection and nitrogen removal capabilities may be infeasible in many instances. These systems would be very costly and, given the uncertainty that any single OWTS may contribute to this impact, may be financially infeasible. If such systems are installed, the water quality and public health impacts associated with pathogen and nitrogen contamination from operation of all existing, new, and replaced OWTS in fractured bedrock environments would be reduced to a *less-than-significant* level. On the other hand, if the State Water Board determines, for fiscal, socioeconomic, or other reasons, that it is not feasible and reasonable to require these systems, the potential impacts discussed in this section would be *significant and unavoidable*.

## DEVELOPING AREAS THAT RELY ON OWTS

### Overview

Another situation where OWTS may be contributing to, or could contribute to, potentially significant cumulative water quality and public health impacts involves developing areas with relatively high densities of OWTS (primarily rural development). As noted in the previous section and Exhibit 7-3, areas that use OWTS, have relatively high densities of development outside of urban areas, and do not have urban services also tend to have high densities of private drinking water wells, thus exposing the owners of wells to potentially significant health hazards.

Relatively high-density development using OWTS in presently rural areas may contribute increased contaminant mass loadings of unattenuated contaminants (i.e., nitrates) within a groundwater basin. Areas most at risk of this occurrence are shown in Exhibits 7-1 and 7-2. Factors that contribute to high densities of development using OWTS include local zoning ordinances and other planning regulations or policies that allow high densities of such development.

Discharges from individual conventional OWTS will exceed WQOs for nitrogen in groundwater. Nearby domestic wells are vulnerable to contamination from such discharges. These impacts are compounded in areas where high densities of OWTS exist, and other human activities may also contribute to contamination, such as runoff and infiltration of nitrogen from landscape fertilization, golf courses and playing fields, wildlife and pet wastes, and agricultural operations. While a few counties apply lot size restrictions or require cumulative nitrate loading assessments when reviewing permit applications for development projects with OWTS (see Chapter 2 for more information), many of the state's counties do not have these types of requirements. The substantial population growth projected in rural areas and for many of the state's counties could contribute additional adverse impacts, especially if the development resulting from such growth is allowed to use OWTS on relatively small lots or is added to areas that already have high densities of OWTS or that have existing high nitrate levels in the groundwater.

### Conclusions

The cumulative water quality and public health impact in rural areas using OWTS that become more densely developed has the potential to be significant because of the increased density of discharges and/or mass loading of nitrogen associated with a corresponding increased density of domestic wells. The proposed project, consisting of the draft statewide regulations and draft waiver, in allowing OWTS without nitrogen removal, could result in a considerable contribution to this significant cumulative impact. For this reason, the project's contribution to the potentially significant cumulative impact on groundwater quality is significant because of contaminant loading. This is discussed under Impact 4.1-5. Mitigation Measure 4.1-5 would require the State Water Board to modify the draft regulations so that all new or replaced OWTS, regardless of the dispersal system design, must include a supplemental treatment unit that provides nitrogen removal. If implemented, Mitigation Measure 4.1-5 would result in the need for installation of large numbers of OWTS with nitrogen removal systems designed to reliably

meet the 10 mg/l total nitrogen requirement. Another way to mitigate this impact would be to require a cumulative nitrate loading assessment for all new OWTS installations and restrictions on the types of new OWTS and approval of new installations based on the results of these assessments. Supplemental treatment systems would be very costly; current costs range from \$26,000 to \$50,000 and the cost for such systems would be borne by the owners. Recognizing that complying with the new regulations may, in some cases, impose a significant monetary hardship to homeowners, the state, in cooperation with EPA has set aside funds from its State Revolving Fund Program that can be made available to local qualified agencies who can then provide low-interest loans to homeowners to either install, repair, replace, or upgrade their OWTS. The homeowners would still bear the primary financial responsibility for these improvements, but could potentially tap into lower interest (than market rate) loans. If these mitigation measures are adopted, the water quality and public health impacts associated with nitrogen contamination from operation of OWTS would be reduced to a less-than-significant level. However, if the State Water Board determines, for fiscal, socioeconomic, or other reasons, that either of these mitigation measures is infeasible and cannot be implemented, the impact associated with nitrogen contamination from operation of OWTS could remain significant and unavoidable.

## **IMPACTS IN OTHER AREAS OF THE STATE**

### **Overview**

In areas of the state not addressed in the sections above, the existing planning process conducted by state, regional, and local agencies is generally adequate to avoid or mitigate cumulative water quality and public health impacts through related CEQA compliance documents, which must address potential cumulative impacts, and existing water quality-related and OWTS-related regulations. This section examines this topic in more detail and addresses a potential situation where local agencies and Regional Water Boards may be unable to avoid or mitigate OWTS-related contributions to cumulative impacts that could be considerable.

Development allowed by local planning agencies, general plans, and specific plans of related projects that have occurred, either in compliance with general plans or outside of their purview, introduces the potential for contamination of groundwater and surface water resources from several factors. The potential exists for increased urban runoff, particularly “first-flush” stormwater runoff that may contain relatively high pollutant concentrations, to infiltrate and cause contamination of groundwater, either intentionally via groundwater recharge basins and other facilities, or as an inherent feature of storm conveyance infrastructure incorporating percolation to groundwater. An increase in the amount of impervious surfaces (e.g., rooftops, sidewalks, driveways, streets, parking lots) as a result of general plan implementation would result in higher rates of runoff during rain events, which can be a source of surface water pollution. New urban industrial and commercial development can generate urban runoff from erosion of disturbed areas, deposition of atmospheric particles derived from automobiles or industrial sources, corrosion or decay of building materials, rainfall contact with toxic substances, and spills of toxic materials on surfaces that receive rainfall and generate runoff. Sediment, organic contaminants, nutrients, trace metals, pathogens, and oil and grease compounds are common urban runoff pollutants. Sediments, in addition to being contaminants in their own right, transport other contaminants such as trace metals, nutrients, and hydrocarbons that adsorb to suspended sediment particles.

Despite the potential adverse water quality impacts described above, new projects must individually meet building code requirements, and if they disturb 1 acre or more of land, they must also file a notice of intent to comply with the terms of the statewide general NPDES stormwater permit for discharges associated with construction activity. Each discharger subject to the statewide general construction permit must prepare and implement a SWPPP identifying BMPs that will reduce pollutants to the appropriate standard. Therefore, while a greater quantity of runoff may be discharged to surface waters with implementation of the related projects because of an increase in impervious surface, the associated surface water and groundwater quality impacts of future related projects are expected to be less than significant given the BMPs required to be used and given the existing regulatory processes designed to protect water quality (including OWTS-related regulations at the local level and regulations enforced by Regional Water Boards). Also, general and specific plans that allow future development to occur are

subject to the requirements of CEQA and related mitigation measures as appropriate. Individual projects that are the subject of project-level CEQA documents must also include disclosure of and mitigation for significant impacts.

Another regulatory “safeguard” program is in place for developing California’s 303(d) list and improving conditions when beneficial uses become impaired (State Water Board 2004). The State Water Board’s water quality control program includes policies for evaluating and listing waters of the state designated as impaired for contaminants, listing contaminants, and delisting contaminants. These processes are designed to protect the beneficial uses of receiving surface water and groundwater of the state from all potential contaminants including those discharged by OWTS.

Four of the nine Regional Water Boards have adopted comprehensive conditional agricultural waivers of waste discharge requirements for agricultural discharges, and a fifth Regional Water Board has adopted a conditional prohibitions to facilitate implementation of a TMDL that has been incorporated into the applicable basin plan to control and assess the effects of discharges from irrigated agricultural lands that can contribute to degradation of groundwater and surface waters. The remaining four Regional Water Boards may also eventually adopt agricultural waivers to implement TMDLs in their regions. These waivers of waste discharge requirements are conditional, with requirements that lead to the development and implementation of management practices designed to control agricultural sources of pollutants. These practices thereby help to protect the beneficial uses of receiving surface water and groundwater.

An exception involves the potentially significant and unavoidable impacts described in Impacts 4.1-5 and 4.1-6 involving ongoing and future violations of total nitrogen WQOs. Such adverse impacts are expected to increase over time as the substantial amount of new growth discussed in Section 7.2.2 takes place, especially in areas where conventional systems (as opposed to systems with supplemental treatment designed to reduce nitrogen) are used for new construction or to replace existing systems.

## **Conclusions**

Given the existing and future regulatory and CEQA compliance requirements summarized above, compliance with most surface water WQOs in basin plans throughout the state should be achieved over time, especially after TMDLs are adopted and fully implemented for impaired water bodies and conditional agricultural waivers are adopted and fully implemented in areas with agricultural operations. In areas with full regulatory compliance and in areas not covered by the situations addressed in the sections above (Sections 7.3.1, 7.3.2 and 7.3.3), future water quality and public health cumulative impacts would be less than significant. In areas with exceedances of WQOs, including those areas discussed in Impact 4.1-5 where ongoing and future OWTS discharges are expected to violate total nitrogen WQOs, future water quality and public health cumulative impacts would be significant. However, these significant cumulative impacts also would be unavoidable if it is technically not feasible for the State Water Board to require:

- ▶ owners of existing conventional OWTS that currently violate total nitrogen WQOs to convert their systems to supplemental treatment systems that would comply with total nitrogen WQOs and
- ▶ all new OWTS to use supplemental treatment in areas where such systems would be necessary to ensure compliance with total nitrogen WQOs.

## **7.2.3 CUMULATIVE BIOLOGICAL RESOURCE IMPACTS**

As explained in Section 4.2.3, OWTS have the potential to indirectly affect biological resources that may occur in or rely on surface water resources where OWTS contribute to surface water contamination. The mass loading from high densities of OWTS within a watershed, combined with inputs from other sources such as agriculture, recreation (e.g., golf courses), stormwater, or urban runoff can contribute sediment, pathogens, nutrients, and

other constituents to aquatic environments. These constituents can lead to eutrophication and hypoxia, resulting in impacts on aquatic biological resources, including aquatic habitats, fish, wildlife, and other organisms.

As outlined above, contributions to contamination of surface waters as a result of increased development and population throughout the state, including additional OWTS, stormwater runoff, and construction-related runoff, would be addressed through the development approval process by local jurisdictions (e.g., general plans, development project EIRs, zoning codes, construction permits) and likely would not contribute to cumulative effects. In areas where surface water bodies are identified as impaired, such contributions are addressed by existing TMDLs.

Degradation and/or eutrophication of surface waters resulting from increased pathogen and/or nutrient loading could lead to a decline in fisheries and adverse effects on other species associated with aquatic habitats, which in turn could affect the diversity and reproduction of special-status species. However, declaring these worst-case scenarios to be significant cumulative impacts would be speculative. It is more likely (although still speculative) that these contributions, while usually not beneficial to the receiving environments (habitats and affected fish and wildlife), would be incremental over time and at some point would be remediated by implementation of new regulatory authority through impairment designations and/or revised regional or local regulations.

Impacts on biological resources may be cumulatively considerable in areas where eutrophication is leading to algal blooms and degradation of aquatic habitat conditions. For the reasons previously described, most WQOs in basin plans and throughout the state should be complied with over time and therefore, in areas with full regulatory compliance (e.g., implementation of TMDLs or other regulatory measures deemed necessary) and appropriate conditions for siting OWTS, future cumulative impacts on biological resources would be less than significant.

## **7.2.4 CUMULATIVE LAND USE IMPACTS**

As described in Section 4.3, “Land Use and Planning,” the proposed regulations do not affect land use planning functions of local jurisdictions throughout the state; these functions are retained by local jurisdictions through State of California planning laws. Of those laws that provide the basis for local jurisdictions to govern development within communities, the general plan (Government Code Section 65300 et seq.) and state zoning law (Government Code Section 65800 et seq.) are of primary use to cities and counties working to direct the type, location, and intensity of growth in an area or region. The proposed statewide regulations for management of OWTS would not affect the authority or purpose of state planning law. Nor would they affect the land use planning processes of local governing bodies that are undertaken in accordance with state planning law. For any local municipality, either one with more restrictive or less restrictive standards for siting of individual OWTS, the proposed statewide regulations would not enable development to occur in places other than where it is allowed by the local governing body in communities throughout the state. Development will continue to occur in some areas and not in other areas throughout the state, based on regulatory and planning decisions made by the local jurisdictions, and cumulative land use impacts may result from those decisions. However, the proposed statewide OWTS regulations would not control those development decisions or contribute to any resulting cumulative land use impacts.

## **7.2.5 CUMULATIVE AIR QUALITY IMPACTS**

The operation of OWTS systems typically generates small amounts of some criteria air pollutants, primarily hydrogen sulfide and possibly oxides of nitrogen (an ozone precursor) if the OWTS includes denitrification, as well as methane, a greenhouse gas (GHG). The amounts of these pollutants emitted by an individual OWTS are minimal. Methane, for example, is produced in the septic tank during decomposition of solids; an individual system produces approximately 0.13 pound per day of methane, with the 1.2 million systems in California producing approximately 76 tons per day. Currently, most air basins in California are in nonattainment for ozone (i.e., the standard was violated during the latest 3-year period), and only a small portion of the Mojave Desert Air Basin (in San Bernardino County) is in nonattainment for H<sub>2</sub>S emissions (ARB 2006). Although CH<sub>4</sub> is

acknowledged to be a GHG and a significant contributor to climate change, it is not a criteria pollutant regulated by air basins in California.

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (Chapter 488, Statutes of 2006, enacting Sections 38500–38599 of the Health and Safety Code). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs the California Air Resources Board (ARB) to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 (which regulates GHG emissions from vehicles, but is currently the subject of litigation) should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32. AB 32 does not specifically apply to the proposed project.

Senate Bill 97, signed in August 2007 (Chapter 185, Statutes of 2007, enacting Sections 21083.05 and 21097 of the Public Resources Code), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the OPR to prepare, develop, and transmit guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions to the California Resources Agency, as required by CEQA by July 1, 2009. The California Resources Agency is required to certify and adopt those guidelines by January 1, 2010.

Previously adopted state regulations include AB 1493 (Chapter 200, Statutes of 2002) (amending Section 42823 of the Health and Safety Code and adding Section 43018.5 of the Health Safety Code), which requires that ARB develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the state.” In 2005, Executive Order S-3-05 was signed by Governor Schwarzenegger; this executive order stated that GHG emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050. Executive Order S-3-05 directed the Secretary of the California Environmental Protection Agency to coordinate a multiagency effort to reduce GHG emissions to the target levels.

The proposed project would not affect applicable air quality plans. Although OWTS contribute a small amount of greenhouse gas emissions (e.g., methane), the proposed regulations would not affect the volume of methane production by OWTS, the number of OWTS, or the volume of wastewater discharged to OWTS. Therefore, the proposed project’s contribution to cumulative air quality impacts would not be considerable. Other sources of air emissions, such as transportation, industrial activities, and power generation, are the major contributors to significant cumulative air quality impacts.

## **7.2.6 CUMULATIVE TRAFFIC IMPACTS**

The proposed project would increase the installation of supplemental treatment units and increase maintenance requirements for OWTS in California. Such activities could result in additional traffic on local and rural roadways. This increase in traffic would be minimal and on an infrequent basis. Operation and maintenance activities under the proposed project would include an increase in septic tank inspections and increased potential for pumping, but related vehicle trips would occur infrequently (once every 5 years at each OWTS location) and on roads where traffic loads are relatively light. The major contribution to cumulative traffic impacts would be from other sources: future development projects and associated growth. Mitigation may be needed in some areas to address cumulative increases in traffic resulting from development, but such mitigation would be addressed by local land use planning and transportation agencies independently of the proposed project. The proposed project’s contribution to any cumulative traffic impacts would not be considerable.

## 7.2.7 CUMULATIVE HAZARDS IMPACTS

The proposed project would require mandatory septic tank inspections for solids accumulation every 5 years; these inspections may lead to an increase in the frequency of septic tank pumping and septage transport and treatment at centralized treatment plants. However, the potential increase in the frequency of septage pumping, transportation, and disposal is not expected to appreciably change the risk of exposure to hazardous materials or releases into the environment because existing and comprehensive septage handling, treatment, and disposal procedures and regulations would continue, and such procedures adequately protect public health and the environment. For example, septage must be disposed of at licensed septage handling facilities where exposure to the general public is not possible. The proposed project's contribution to cumulative public hazard impacts would not be considerable.

## 7.3 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Sections 4.1 through 4.3 of this draft EIR describe the potential environmental impacts of the proposed project and recommend various mitigation measures to reduce these impacts, to the extent feasible. After implementation of the recommended mitigation measures, most of the impacts associated with the proposed project would be reduced to a less-than-significant level. Impacts on water quality and public health would remain significant and unavoidable if requiring systems with disinfection and nitrogen removal capabilities is infeasible. Summary discussions of significant and unavoidable impacts by issue are provided in the following text. Chapter 6, "Alternatives to the Proposed Project," considers alternatives to the proposed project that may be capable of reducing or avoiding some of the impacts of the proposed project.

### 7.3.1 WATER QUALITY AND PUBLIC HEALTH

- **Impact 4.1-5: Direct Impacts Associated with Nitrogen Contamination Caused by Operation of OWTS in Areas Other than in Targeted Areas Next to Nutrient Impaired Water Bodies.**

Most of the nitrogen compounds in OWTS effluent will be nitrified and become nitrate below the infiltrative surface. Once nitrates from OWTS reach groundwater, they can travel hundreds of feet as long, narrow, and definable plumes in concentrations that may eventually exceed drinking water standards (EPA 2002). While qualified professional and shallow dispersal system requirements would improve system performance, and some level of denitrification may occur once in the soil under the right soil conditions, total nitrogen concentrations in OWTS effluent may not be sufficiently low to protect water quality or public health, except where the OWTS include a supplemental treatment unit that meets the water quality objective for nitrate-nitrogen in groundwater. Thus, OWTS in areas other than targeted areas of nutrient impairment would have the potential to degrade groundwater quality and adversely affect the beneficial uses of groundwater and surface waters that are hydrologically connected to the groundwater.

If Mitigation Measure 4.1-5 is implemented by the State Water Board, discharges from all new and replaced OWTS would meet the water quality objective for nitrate-nitrogen (10 mg/l) at the point of compliance. As stated above, this is a potential impact, and may not occur in all soil and groundwater conditions. If implemented, Mitigation Measure 4.1-5 would result in the need for installation of large numbers of OWTS with nitrogen removal systems designed to reliably meet the 10 mg/l total nitrogen requirement. Supplemental treatment systems would be very costly; current costs range from \$26,000 to \$50,000 and the cost for such systems would be borne by the owners. Recognizing that complying with the new regulations may, in some cases, impose a significant monetary hardship to homeowners, the state, in cooperation with EPA has set aside funds from its State Revolving Fund Program that can be made available to local qualified agencies who can then provide low-interest loans to homeowners to either install, repair, replace, or upgrade their OWTS. If this mitigation measure is adopted, the water quality and public health impacts associated with nitrogen contamination from operation of OWTS would be reduced to a *less-than-significant* level. However, if the State Water Board determines, for fiscal, socioeconomic, or other reasons, that this mitigation measure is

infeasible and cannot be implemented, the impact associated with nitrogen contamination from operation of OWTS would be *significant and unavoidable*.

► **Impact 4.1-7: Direct Impacts Associated with Nitrogen Contamination Caused by Operation of OWTS with Seepage Pits Statewide.**

Seepage pits are designed to discharge OWTS effluent to deeper soils, where the available oxygen supply is typically inadequate to facilitate nitrification of conventional OWTS effluent. Seepage pits also lack a carbon source that would facilitate denitrification of previously nitrified effluent. Therefore, little or no nitrogen removal would be likely where conventional OWTS or aerobically treated effluent from OWTS with supplemental treatment is discharged to seepage pits. Because the proposed regulations would not require OWTS to include a supplemental treatment unit that provides nitrogen removal before effluent is dispersed to a seepage pit, nearby domestic wells hydrologically connected to groundwater receiving seepage pit effluent would be highly vulnerable to nitrate contamination, particularly in fractured bedrock environments. For this reason, direct water quality and public health impacts associated with nitrogen contamination from operation of new and replaced OWTS that discharge to seepage pits is considered significant.

Implementation of Mitigation Measure 4.1-7, “Modify the Regulations to Include the Requirement That All New or Replaced OWTS, Regardless of the Dispersal System Design, Shall Include a Supplemental Treatment Unit That Provides Nitrogen Removal,” would reduce water quality and public health impacts associated with nitrogen contamination from operation of OWTS with seepage pits to a *less-than-significant* level because these OWTS would be discharging effluent that would dependably meet the water quality objective for nitrate-nitrogen at the point of compliance in groundwater. The same cost issues would pertain to this mitigation as to Mitigation Measure 4.1-5. Similarly, if the State Water Board determines, for fiscal, socioeconomic, or other reasons, that this mitigation measure is infeasible and cannot be implemented, the impact associated with nitrogen contamination from operation of OWTS would be *significant and unavoidable*.